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NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

A FEASIBILITY STUDY ON THE IMPLEMENTATION
OF THE RED/YELLOW/GREEN PROGRAM

by

Richard Oriece Cowart

June, 1991

Thesis Advisor:

Rodney F. Matsushima

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A Feasibility Study on the Implementation of the Red/Yellow/Green Program

by

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Submitted in partial fulfillment
of the requirements for the degree of

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ABSTRACT

The implementation of the Red/Yellow/Green Program is the Navy's newest source selection improvement program. The RYG Program provides the Contracting Officer with a means of selecting the contractor which offers the best overall value to the Government by considering the contractor's past performance, rather than the lowest price. The RYG Program classifies contractors according to their past quality performance using an automated Navywide data base. The use of the RYG Program should reduce unnecessary quality assurance oversight and allow activities to concentrate scarce resources where they are required. This thesis addresses the key issues for successful Navywide implementation of the RYG Program. Based on this research, it is recommended that the RYG Program be immediately implemented on a Navywide basis.

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I. INTRODUCTION

A. OBJECTIVES

The United States Navy has conducted a one-year test period of the Red/Yellow/Green (RYG) Program which concluded on 1 July 1990. The RYG source selection improvement program uses contractor past quality performance in the source selection process. The program was developed in an attempt to reduce the problem associated with poor contractor product quality. These poor contractor product quality problems not only impair fleet readiness, increase costs, and compromise safety but also inhibit the Government from obtaining the best purchase value from the contractor. [Ref. 1]

The RYG Program is designed to use information contained in the Navy's Contractor Evaluation System (CES) and the Product Deficiency Reporting and Evaluation Program (PDREP) data base. This centralized data base was established at the direction of the Secretary of Navy to provide:

A product deficiency reporting and data feedback system, maintenance of contractor/supplier quality history and effective use of these data to influence the pre-contract award process and formulate the basis for necessary post-award quality assurance action. [Ref. 2]

The CES/PDREP data base is composed of contractor quality information gathered from the following sources:

1. Quality Deficiency Reports (QDRs)
2. Material Inspection Record (MIR)
3. Reports of Discrepancy (RODs)
4. Navy Vendor Data Analysis Report (VDAR)
5. Pre-award Surveys
6. Defense Logistics Agency (DLA) Contractor Improvement Program (CIP) Alert List
7. Method C, D, and E Corrective Action Listing
8. Defense Contractor Management Command (DCMC) Quality Systems Reviews
9. Small Business Administration Certificates of Competency.

These reports are forwarded to NMQAO via their respective chain of command. NMQAO then evaluates the reports to determine contractor liability and adds the appropriate entries to the CES/PDREP data base. Based on the information contained in the CES/PDREP data base, RYG classifies each contractor as Red (high risk), Yellow (moderate risk) and Green (low risk) performers. Contractors who do not meet established criteria for RYG classifications are listed in the "Insufficient Data" category. Classification is done by Federal Supply Classification (FSC) so a contractor who

produces material in more than one FSC may have more than one RYG classification. [Ref. 2]

The RYG concept combines CES/PDREP contractor quality history with prescribed procedures to find the best value. RYG emphasizes contractor quality history by adding the cost of receiving poor quality goods or services into the procurement source selection process. One method of accomplishing this costing procedure is through the use of Technical Evaluation Adjustment (TEA) which exemplifies the expected cost to the Government to correct or take appropriate action due to unsatisfactory contractor performance.

Another method used with the Fixed Price-Greatest Value method of procurement is to rate the offerors in term of expected quality of performance. [Ref. 2] All proposals including necessary TEAs are evaluated to determine a source selection that will result in the best overall contract for the Government.

The focus of this research is to analyze the feasibility of implementing the RYG Program throughout the Navy procurement system. This will include evaluation of the benefits derived from utilizing the RYG Program, impediments to implementation, and the ability to integrate the RYG Program with current procurement procedures. These data will include information obtained during the test of RYG Program

conducted at five Navy field activities (Naval Air Engineering Center Lakehurst, Naval Avionics Center Indianapolis In, Naval Ships Parts Control Center Mechanicsburg Pa (Code 021, Level 1/SS), Naval Supply Center Charleston/Naval Shipyard Charleston, and Naval Supply Center Pensacola/Naval Aviation Depot Pensacola) which was compiled by NMQAO. [Ref. 3]

B. RESEARCH QUESTIONS

The primary research question is: Should the Navy implement the RYG Program for all acquisition / procurement? The research will evolve around the actual test data in determining the success of this program.

The secondary research questions in this area are:

- (1) Is the versatility of the RYG Program sufficient to meet the requirements of Navywide Procurement?
- (2) Can the RYG Program be integrated with current procurement practices?
- (3) Can the current RYG Program be expanded to include all the contractor quality history data for the entire navy procurement system.

C. RESEARCH METHODOLOGY

Initial research will be conducted by reviewing and analyzing data collected from primary sources, including actual raw contract award data from each of the test sites.

These data will be collected specifically through telephone interviews and monthly status reports of the RYG test to evaluate the current status of the test and the potential for future expansion of the program. The interviews will involve personnel from Assistant Secretary of the Navy (Research, Development, and Acquisition) Reliability, Maintainability, and Quality Assurance (ASN(RDA)RM&QA), Naval Material Quality Assessment Office (NMQAO), Naval Supply Systems Command (NAVSUP), Navy Ships Parts Control Center (SPCC), the five activities involved in the test, as well as hardware systems commands, and other procurement activities which may be involved in the implementation of RYG.

D. SCOPE AND LIMITATIONS

The scope of the thesis will be to evaluate the possibility of implementing the RYG Program. The scope will be limited to the evaluation of RYG procedures, the ability of RYG to be integrated with current procurement procedures, and the applicability and benefits of RYG for different types of procurement.

E. ORGANIZATION

The remainder of the thesis is organized into the following chapters:

1. Chapter II "Background" provides an understanding of the RYG Program and how it interfaces with CES/PDREP.
2. Chapter III "Analysis of the Red/Yellow/Green Program" provides an analysis of the RYG program computer capabilities, the test performance, cost and savings analysis, integration analysis, and alternatives analysis.
3. Chapter IV "Impediments and Benefits of Implementation" provides the pros and cons of Navywide implementation of the Red/Yellow/Green Program.
4. Chapter V "Conclusions and Recommendations" discusses whether or not to implement the Red/Yellow/Green Program Navywide and the basis for the decision.

F. SUMMARY OF FINDINGS

The findings include the evaluation of the benefits provided by a comprehensive analysis of the feasibility of implementing the RYG Program throughout Navy procurement activities.

II. BACKGROUND

A. RED/YELLOW/GREEN PROGRAM

The Navy, like other Department of Defense components, continues to experience problems with contractor product quality. These problems impair fleet readiness, increase costs, and compromise safety. A key to improving quality is to use contractor product quality history in the contract award process to ensure the Navy receives the quality it requires. [Ref. 4]

The Navy developed the Red/Yellow/Green (RYG) Program to meet the requirements of the Department of Defense (DoD) and Secretary of Navy (SECNAV) policies. These policies state that contractor quality history will be collected and maintained in a centralized data base to assure that contracts are not awarded to contractors with a previous history of providing unsatisfactory quality products without determining required quality assurance action prior to and after contract award.

Red/Yellow/Green Program is the title given to the methodology of evaluating and categorizing contractor quality performance data by Federal Supply Classification (FSC) and using these data to assist in the source selection process.

Under the RYG Program, a contractor's past quality performance is evaluated and assigned a color classification based upon the degree of risk to the Government of receiving poor quality products. The RYG program does not classify contractors, but rather it classifies the contractor's quality performance by FSC, so a contractor who provides material in more than one FSC may have more than one RYG classification.

The RYG program color classifications are: RED - High quality risk, YELLOW - Moderate risk, and GREEN - Low risk. Contractors for which there is insufficient data are assigned an "Insufficient Data" status. The general description of each color classification as outlined in the program are:

1. **RED:** The performance history of the contractor for a given commodity indicates that he has supplied goods or services of poor enough quality to require the application of special quality assurance actions. The seriousness of the contractor's negative quality history is sufficient to require review and approval by the head of the contracting office (as defined by the Federal Acquisition Regulation (FAR)) prior to contract award. The contractor is designated as a high quality risk.

The red classification will not be utilized to bar a contractor from competing. The intent is to deter awards from continually poor performers and ensure that sufficient

oversight is in place in the event that a red contractor receives an award. [Ref. 5]

2. **YELLOW:** The performance history indicates the contractor has supplied goods or services of a particular commodity of poor enough quality to require special quality assurance actions in an effort to reduce the risk of delivery of poor quality products to the Navy. The contractor is designated as a moderate quality risk. [Ref. 5]

3. **GREEN:** The performance history indicates that the contractor has supplied goods or services which meet or exceed the quality requirements of the contract. His proposal is to be evaluated in accordance with established acquisition regulations without anticipating special quality actions. The contractor is designated as a low quality risk. [Ref. 5]

The specific criteria used to classify a contractor as Red, Yellow, or Green are listed in APPENDIX A.

4. **INSUFFICIENT DATA:** A contractor is identified as having "Insufficient Data" to meet the RYG classification on a particular commodity if: (a) The contractor is a first time offeror for that FSC, (b) no quality history is available on the contractor for that FSC, (c) the only available quality information data are beyond the evaluation periods set forth in APPENDIX A. In the case of a contractor being classified as having "Insufficient Data", the Contracting Officer may

elect to employ additional quality assurance actions. Technical Evaluation Adjustments (TEAs) will not be added to the contractor's price during the pre-award evaluation process. [Ref. 5]

It is important to understand that procedures set for the RYG Program are not designed to eliminate the requirement that a determination of responsibility be made for every prospective contractor prior to award. The color classification of a contractor alone is insufficient to determine responsibility of the contractor. Responsibility determination must be made in accordance with Federal Acquisition Regulation 9.104 without consideration of the contractor's color classification.

The solicitation documents and synopsis in the Commerce Business Daily for procurement that will be made under the RYG Program during the test period are required to advise contractors of RYG procedures and will indicate that final contract award will be based upon a combination of factors, including price and historical quality performance.

B. CONTRACTOR EVALUATION SYSTEM/PRODUCT DEFICIENCY REPORTING AND EVALUATION PROGRAM

The RYG program uses information contained in the Navy's Contractor Evaluation System (CES) and the Product Deficiency

Reporting and Evaluation Program (PDREP) data base. The CES/PDREP are managed by the Naval Sea Systems Command detachment, Naval Material Quality Assessment Office (NMQAO), under the direction of the Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition) Reliability, Maintainability, and Quality Assurance (ASN(RDA)RM&QA).

The data base is composed of contractor quality information gathered from the following sources:

1. Quality Deficiency Reports (QDRs). QDRs are prepared by Navy field activities to document product quality deficiencies, design deficiencies, or inadequate procurement documents resulting in defective new and newly reworked material being delivered to the Navy. [Ref. 5] All QDRs are submitted to the Naval Air Systems Command (NAVAIR), the Navy focal point for QDRs. Once each week, QDRs determined to be contractor liable and with defects verified, are transmitted by NAVAIR to NMQAO for inclusion in the PDREP data base. [Ref. 6]

2. Material Inspection Record (MIR). MIRs are prepared either by Navy representatives performing technical inspections at a contractor's plant or by Navy field activities performing technical inspections upon receipt of material. MIRs are submitted to the Navy Systems Command having cognizance over the field activity. [Ref. 3] The Systems Commands (NAVAIR, NAVSUP, Naval Facilities Engineering Command, and Space and Naval Warfare Command) then transmit the MIRs to NMQAO. The MIRs generated by NAVSEA activities are submitted directly to NMQAO. [Ref. 6]

3. Reports of Discrepancy (RODs). RODs are prepared by Navy field activities to document receipt of incorrect material, shortages and overages, and discrepancies in preservation, packing, and marking. RODs are submitted to Naval Supply Systems Command (NAVSUP). [Ref. 5] However due to lack of real value

of the RODs to the RYG program, RODs are no longer being included in the classification process; however, they will continue to be collected for the CES/PDREP program. [Ref. 7]

4. Defense Logistics Agency (DLA) Contractor Improvement Program (CIP) Alert List. Contractors are placed on the DLA alert list if DLA has placed them in the CIP, if they have received a negative pre-award survey, or if Defense Contract Management Command (DCMC) has recommended they be given a pre-award survey for a particular reason. [Ref. 8] DLA sends a hard copy of the list to ASN(RDA) RM&QA. ASN then sends a copy to NMQAO.[Ref. 6]

5. Navy Vendor Data Analysis Report (VDAR). The VDAR identifies contractors who, because of past poor performance, should be considered carefully before being awarded a contract and should be monitored after contract award. Evaluation of performance is based on data from pre-award surveys, QDRs, open DLA method C, D, or E corrective action, and conviction or an investigation for malpractice or fraud. [Ref. 8] The VDAR is compiled by NMQAO based on past performance and input from Navy Systems Commands and their field activities. [Ref. 6]

6. Pre-award Surveys. Pre-award surveys are conducted by contract administration offices when a procuring contracting officer needs additional information to determine contractor's management, financial capability, and technical skill to determine whether he/she will be able to perform the proposed contract. [Ref. 9]

Only those pre-award surveys requested by Navy activities are included in PDREP. The Navy activities that requested the survey submit a copy of the completed pre-award survey to the cognizant Systems Command. The Systems Commands then transmit copies to NMQAO. NAVSEA activities submit copies of surveys directly to NMQAO. [Ref. 6]

7. Method C,D, and E Corrective Action Listing. Contractors are placed on the corrective action listing if DLA has documented deficiencies in their quality programs. Specifically, method C indicates that the contractor has a serious quality problem or has not corrected a deficiency documented using method B (a major deficiency). The Government sends a letter

to the firm's top management requesting corrective action. Method D indicates that less severe methods of corrective action (i.e., A, B, and C) have failed. The acquisition quality assurance program is discontinued, and the contractor is advised that the Government will not accept his goods or services until deficiencies have been corrected. Method E is used to advise a prime contractor that a subcontractor has quality deficiencies that would justify method C or D corrective action in a prime contractor and to request that the prime take corrective action with his subcontractor. [Ref. 10] DCMC sends a hard copy of the listing to ASN(RDA) RM&QA. ASN then sends a copy to NMQAO. [Ref. 6]

8. Product-Oriented Surveys. Product-Oriented surveys are technical product inspections conducted in a contractor's plant when a buying activity desires to perform a special test on an item. They are performed by DCMC when requested by the buying activity. If DCMC does not have the necessary resources, the buying activity may perform the survey. When a Navy activity requests a product-oriented survey, it submits a copy to the appropriate System Command. The Systems Commands then transmit the surveys to NMQAO. NAVSEA activities submit copies of surveys directly to NMQAO. [Ref. 6]

9. Defense Contract Management Command (DCMC) Quality System Reviews. Quality system reviews are performed by DCMC. They involve an evaluation of the contractor's quality procedures and verification that the contractor's quality practices conform to those procedures. [Ref. 10] The reviews also evaluate the Government's in-plant quality assurance program. Navy activities receive copies of quality system reviews if they participate in the review with DCMC or if they request a copy. Copies received by Navy activities are submitted to the appropriate Systems Command. The Systems Commands then transmit the reviews to NMQAO. NAVSEA activities submit copies directly to NMQAO. [Ref. 6]

10. Small Business Administration Certificates of Competency (COC). If a small business is determined to be non-responsible by a Government buying activity, the small business can request that the Small Business Administration (SBA) determine whether the business is

responsible. If the SBA concludes that the small business is responsible, it will prepare a COC to document that determination. The buying activity must then treat the small business as a responsible offeror. [Ref. 3] The SBA sends hard copies of COCs to NMQAO for inclusion in PDREP. COCs are collected mainly for CES/PDREP and are not included in the RYG classification process. However, they do provide the contracting officer with a more complete profile of the contractor. [Ref. 11]

The CES data base excludes:

1. Material evaluations for base application and local use.
2. Contractors developing major weapon systems.
3. Medical procurement, material, suppliers, or evaluations.
4. Subsistence procurement, material, suppliers, or evaluations.
5. Unsatisfactory material condition caused by improper handling after receipt, deterioration during local storage, or inadequate maintenance or operation.
6. Transportation discrepancies caused by the carrier.
7. Ammunition and explosives accidents.
8. Nuclear weapons procurement, material, suppliers, or evaluations.
9. Naval Nuclear Power Plant primary system procurement, material, suppliers, or evaluations.
10. Strategic Systems Project Office procurement, suppliers, or material evaluations. [Ref. 3]

NMQAO utilizes the data base to classify the contractors according to the RYG program criteria and updates the RYG status report monthly.

The CES/PDREP identifies contractors whose quality history may require the use of additional pre-award or post-award quality assurance actions to ensure products of the required quality are received. However, under CES/PDREP there is no procedure to determine which offeror provides the best value to the Navy. Consequently, what makes the RYG concept unique is that it combines CES/PDREP contractor quality history with prescribed procedures to find the best value. RYG emphasizes contractor quality history by adding the cost of receiving poor quality goods or services into the procurement source selection process. RYG adds this cost to the offeror's price, permitting the Contracting Officer to select a contractor on the basis of quality and cost, rather than cost alone.

C. VALIDITY OF CES/PDREP DATA BASE

A major concern of the RYG Program is the validity of the CES/PDREP data base and the effect that this possible lack of validity might have on contractor protests emerging from the RYG Program. To ensure that contractors have every opportunity to challenge specific classifications, NMQAO mails letters on a monthly basis to Red and Yellow classified

contractors detailing the reasons for their classification, the effect of the classification, and the procedures required to challenge the classification. During the test period, a total of 5,983 letters were mailed. Surprisingly, only 461 responses were received, and of those only 109 were disagreements with the classification. Those challenges resulted in 53 corrections to the data base and 43 classification changes. With less than 2% of all Red and Yellow classified contractors responding to the classification letter with challenges, and less than 1% of all contractors notified resulted in changes to the data base, the credibility of the data base has been firmly established. Furthermore, by sending notification letters to the contractors to inform them of their color classification and procedures for redress, NMQAO has virtually eliminated the possibility that protests based on the accuracy of the data base will be filed. Any contractor who fails to take timely action to correct these data base will be prevented under the rules of estoppel from utilizing the error in the data base as a basis for protest at a later date. CES/PDREP is updated monthly to include all corrective actions resulting from challenges and new information processed from all field activities. The Contracting Officer can then access the data base and from the classification and code assigned to the contractor, determine

whether a Technical Evaluation Adjustment (TEA) should be added to the contractor's proposal.

D. TECHNICAL EVALUATION ADJUSTMENT (TEA)

Technical Evaluation Adjustment's (TEA) are the anticipated additional costs the Government would incur for taking certain additional pre-award and post-award quality assurance actions when the contractor for that product is classified as "Red" or "Yellow". TEA's are applied based on whether the award is considered a small purchase (< \$25,000) or a major purchase (> \$25,000). The procedures for applying the TEAs are as follows:

1. For the purposes of the RYG program, simplified small purchase procedures were initially defined as purchases with a total value in excess of \$2,500 but less than \$25,000. When RYG procedures are used for simplified small purchases, the purchasing agent determines the offerors color classification from the data base and assigns the applicable standard TEA value as listed in APPENDIX C. The standard value is derived from the cost of additional quality assurance actions such as Government Source Inspection, Receipt Inspection, and Quality Assurance Letter of Instruction. The cost estimates of these quality assurance actions which are required to be performed are listed in APPENDIX D. The corresponding value assigned to

each of the quality assurance action are calculated as shown in APPENDIX E.

2. For major purchases, RYG procedures require that the Contracting Officer determine the offeror's color classification and code from the RYG Evaluation Criteria listed in APPENDIX A. Utilizing the guidelines for TEA assignment in APPENDIX B, the Contracting Officer can determine which additional quality assurance requirements the Government will use. The additional requirements correspond to estimated costs listed in APPENDIX D. These costs have been computed from the standard costs listed in APPENDIX E. The total cost of the additional quality assurance requirements will give the Contracting Officer the required TEA.

Except for actual DCMC costs, the estimated costs listed in APPENDIX D are provided as examples. Each activity must calculate its own set of TEA costs using the format in APPENDIX E, since the TEA costs are based on local prevailing test costs and labor rates.

The TEA represents the anticipated cost to the Government to correct or take appropriate quality assurance action due to poor previous contractor performance. The application of the TEA raises a contractor's proposed price. This provides the Contracting Officer with the ability in the source selection

process to obtain the supplies or services at the best overall value to the Government.

After TEA's have been computed and added to the contractor's proposals, the contract is then awarded to the appropriate contractor. If the contract is subsequently awarded to a Green offeror, no other action is required. If, however, the contract is to be awarded to a Red or Yellow offeror, the Contracting Officer must insure that the appropriate clauses are added to the contract to ensure that additional quality assurance actions are taken during performance.

E. GREATEST VALUE/BEST BUY

Another manner in which RYG is utilized is through GREATEST VALUE/BEST BUY evaluation criteria, which apply only to negotiated competitive solicitations. During the test period, the test activities developed evaluation plans and procedures tailored to their requirements. The evaluation plan considers price, which is given a minimum evaluation weight of 40%, and the remaining percentage apportioned only to quality. Point scores are then assigned according to the contractor's RYG classification, and the offerors are then ranked according to those point scores for both factors (price and quality).

F. SUMMARY

This chapter described the background surrounding the Navy's RYG Program. It introduced and briefly described the RYG Program evaluation criteria. It also described the CES/PDREP data base which is the basis of the RYG program. And finally, it explained the TEA and Greatest Value process of assigning adjustments to Red or Yellow contractors. The next chapter will analyze the performance of the RYG Program during the test period.

III. ANALYSIS OF RED/YELLOW/GREEN PROGRAM

A. INTRODUCTION

This chapter analyzes the results of the RYG Program Test to assess its ability to continue in an expanded environment (Navywide implementation). The chapter is organized in the following manner:

1. The first section describes the capabilities of the computer systems which process data for the CES/PDREP and the RYG Program, and the data base which those systems manipulate. Furthermore, the size and accuracy of the data base and the ability of the computer systems to accommodate the increased amount of data to be generated from Navywide implementation is discussed. The means used by field activities to enter information into the CES/PDREP data base will also be addressed.

2. The second section analyzes the performance of the RYG Program during the test period. This includes an analysis of the small and large purchase, and Greatest Value/ Best Buy procedures.

3. The third section analyzes the additional costs required to implement the RYG Program Navywide and the

anticipated savings to be achieved through the use of the RYG Program.

4. The fourth section addresses the integration of the RYG Program with current acquisition systems and procedures.

5. The last section discusses alternatives to the RYG Program.

B. COMPUTER SYSTEMS AND DATA BASES

1. Computer Capabilities

The heart of the RYG Program is the computer system used to capture and process all the raw data for the CES/PDREP. The computer is a Univac 1100/73 mainframe located in Newport, Rhode Island and operated by Naval Computer and Telecommunications Station (NCTS), Newport, R.I. The computer operating system, data base management system, transaction interface package, query language, and other processing systems are all written by Univac for the 1100 series computer, and as such are proprietary in nature. The system contains standard main memory, tape and hard disk drive memory. [Ref. 12]

There are 400 programs which drive the CES/PDREP information system. These programs are written in COBAL language. The current data base for CES/PDREP is approximately one gigabyte or one billion bytes of

information. Since the data base is stored on magnetic tape and other external memory devices, the size of the data base is virtually limitless.

The time it takes to update the CES/PDREP data base is the major constraint imposed on the data base. Currently, the monthly update requires approximately 6 hours to complete. The computer system on which the CES/PDREP is processed adequately meets the additional data processing requirements that would be placed upon it with full Navywide implementation. [Ref. 11]

The RYG Program data base is only 1.2 megabytes in size, as such it can be run on any IBM compatible computer. The minimum requirements for this microcomputer are at least 640 kilobytes of Random Access Memory (RAM) and a hard disk drive memory with a minimum capacity of 10 megabytes. This means that even the oldest Personal Computers (PC) in the Navy inventory are able to run the RYG Program.

2. Description of the Data Base

The CES/PDREP data base is constantly updated with the addition of new information received from field activities. Once a month the classification program is run to update each supplier's classification. The program generates reports and contractor notification letters. Contractor classification data from the CES/PDREP update are then used by NMQAO to

update the RYG Program. The RYG Program data base, which is used by participating activities, requires only 15 minutes to update after the monthly classification update by NCTS Newport is completed.

The two major concerns associated with data base management are the size of the data base in relation to available memory and the accuracy of data input into the data base. In evaluating the feasibility of implementing the RYG Program, there are obvious concerns related to the anticipated size of the data base and the computer capabilities to handle that data.

During the test period of the RYG Program, the five activities designated to participate in the program selected 152 FSCs to which they would apply the RYG Program. Additionally, NMQAO collected data on all the FSCs which applied to Navy procurement. This amounted to approximately 5,000 FSCs. The RYG data base currently contains information on more than 13,000 contractors. It is anticipated that Navywide implementation will approximately quadruple the amount of input information resulting in a much larger data base. [Ref. 11]

The size of the data base is a function of input data over which the RYG Program has limited control. However,

NMQAO is constantly investigating methods and procedures which will encourage activities to respond with pertinent data.

Contractor information contained in the data base is the heart of the RYG Program. Therefore, the accuracy of the data base is essential for a successful program. A reasonable measure of the accuracy of the data base would be to analyze the responses received from contractors classified as Red or Yellow. As discussed in Chapter II, NMQAO mails a notification letter to each contractor with these classifications after each monthly update. During the test period, 5,983 of these letters were mailed to contractors, with only 109 rebuttals to the classification assignment. This amounted to less than 2% of the total Red or Yellow classified contractors. Of these 109 responses, 53 resulted in changes to the data base, which resulted in only 43 classification changes. Whenever new data are received, the data base is immediately updated to reflect the change. In the event of a classification change, the contractor's new classification was immediately communicated to all the test activities.

Even though the above statistics show that the data base is better than 99% accurate, NMQAO is continuing to implement stringent quality control measures to maintain the high accuracy rate. The majority of errors occur during the keypunch operation where the initial information is input into

the system. NMQAO has taken the current two step data input method used to update the CES/PDREP data base and attempted to streamline the process, while maintaining the data base integrity. In the current process, the raw data must flow from the field activities through their cognizant hardware systems command for initial review. For QDRs and RODs, a determination of contractor liability must be made at this level. The input data are further reviewed by Naval Air Systems Command in the case of QDRs or NMQAO for all other types of data, prior to its input into the CES/PDREP data base.

The RYG Program is totally dependant upon the contractor quality information previously discussed in Chapter II; however, without the necessary information with which to classify the contractors, the RYG Program cannot continue to function. To increase the amount and accuracy of contractor information flowing into the CES/ PDREP system, NMQAO has developed a program called Contractor Evaluation Data Entry System (CEDES). This program is a microcomputer based, menu driven, DBASE program designed to enable field activities to input the contractor quality information directly into the CES/PDREP data base. The program will allow the field activities to input pre and post award survey results, Material Inspection Records (MIRs), and Product Oriented and

Special Surveys directly into the CES/PDREP data base via dial up telecommunication lines. This program was initially designed to allow direct activity input while maintaining data accuracy. This is accomplished through the use of edit checks and validation tables available within the DBASE program. The program has just recently been deployed to five test sites for evaluation:

1. The Naval Weapons Station, Earle, New Jersey
2. Naval Shipyard Norfolk, Va.
3. Naval Shipyard Charleston, S.C.
4. Naval Air Engineering Center, Lakehurst, N.J.
5. The Mare Island Naval Shipyard, Ca.

The program has been in the field since 1 June 1991. Personnel training is being conducted and data input using CEDES is expected to start in July 1991.

3. Summary

In summary, the computers in use are capable of handling the additional information requirements which will come with Navywide implementation of the RYG Program. The data bases which are the basis of the RYG Program are accurate. NMQAO is investigating innovative methods to improve quality and reduce input barriers. The supporting system requirements are in place to facilitate Navywide implementation of the RYG Program.

C. ANALYSIS OF THE RYG PROGRAM TEST PERFORMANCE

The CES/PDREP was developed in response to the Department of Defense and the Secretary of the Navy's mandate that contractor quality history be maintained in a centralized data base. [Ref. 1] To make that organized data base useful, the RYG Program was developed and tested for one year ending on 30 November 1990. This section addresses the performance of the RYG Program Test to assess the feasibility for Navywide implementation.

1. RYG Program Procurement Procedures

The RYG Program procurement procedures are divided into three types.

a. Simplified Small Purchase. This was defined as all oral or written quotations resulting in awards with a total estimated value greater than \$2,500 but less than \$25,000. These purchases can include, at the discretion of the activity, Purchase Orders, Blanket Purchase Agreement (BPAs) calls, Imprest Fund purchases, and delivery orders against established Indefinite Delivery Indefinite Quantity contracts or General Services Administration (GSA) Federal Supply Services Contracts. [Ref. 13] Subsequently, the dollar threshold was lowered to zero to stimulate more activity for the test period. [Ref. 7]

b. Major Purchase. This is defined as all negotiated competitive solicitations for selected commodities with an expected contract value greater than \$25,000. The use of major purchase procedures was limited to two of the five test sites, SPCC, Mechanicsburg Pa., and NSC/NAD Pensacola Fl. [Ref. 14]

c. Fixed Price/Greatest Value procedures. These are defined the same as those for major purchase, except that TEAs will not be used. Activities use a type of weighted evaluation criteria to evaluate the proposals as shown in APPENDIX F. The test activities established their own evaluation plan/procedures. These plans considered price and quality history as the only two evaluation factors. Price was given a minimum value of 40% with the remaining 60% applied to quality history. [Ref. 15]

2. Test Period Results

During the test period, there were 1,104 total RYG Program procurements of which 1,014 were competitive awards, 62 were sole source awards, and 28 awards required that the RYG Program procedures be waived. Of the 1,014 awards, 631 or nearly two-thirds of all the RYG awards went to "Insufficient Data" offerors. [Ref. 4] This large number of "Insufficient Data" awards can be attributed to the relative infancy of the CES/PDREP data base.

Of the 383 contract awards which were made to classified contractors, 55 resulted in displacements. A displacement occurs when the low offeror loses an award because of the TEA application. NMQAO has computed a displacement percentage by dividing the 55 displacements by the 383 RYG classified awards to give them a 14% displacement factor. This 14% figure excludes the insufficient data awards from the equation. As more quality history data becomes available, the majority of the insufficient data classifications will become a Green classification, thus raising the denominator and reducing the overall displacement ratio. By using the total 1,014 RYG awards as the denominator, the displacement ratio becomes approximately 5.5%. While this may be significantly lower than the publicized displacement rate of 14%, a displacement of 5% of the proven poor quality performers is still a considerable improvement over current practices.

3. Reduced Number of Bids from Poor Performers

An unexpected, yet welcome outcome of the RYG Program was the conspicuous absence from the competitive bidding process of several contractors with poor performance histories. This probably happened because they were made aware that the quality of their products were to be evaluated as a criteria for award. Interestingly, this phenomenon

occurred at all five test sites. While it is impossible to measure the cost savings of this phenomenon or even to determine why these poor quality contractors did not bid, their failure to bid is a potential intangible benefit to the Navy. If the threat of using past poor quality performance is enough to eliminate some of the worst offenders, the program is already paying for itself.

4. Protests

Another important factor is that there were only two protests lodged due to the use of RYG Program criteria. The first protest was made because the contract award went to other than the low offeror. The low offeror who was displaced lodged the protest on the basis that her company deserved special treatment because her firm is a "new, woman owned business". This protest did not challenge the red color classification nor the criteria used to assign the color classification. The protest requested special dispensation because of minority ownership. This protest was received late and dismissed by the Contracting Officer.

The second protest was made to the General Accounting Office (GAO) by a contractor who chose not to bid because of the RYG evaluation criteria. The contractor took issue with the fact that The RYG Program was used for this solicitation.

This contractor was currently on the Contractor Improvement Program. [Ref. 4] GAO dismissed the protest.

In summary, the two protests filed did not challenge the RYG Program evaluation procedures or the assignment of color classification based upon the contractors past quality performance.

5. Summary

Although the RYG Program Test was very limited in nature and scope, it provided a valuable basis for evaluating the RYG Program and CES/PDREP reliability. The test's restricted size enabled NMQAO, NAVSUP, ASN(RD&A)RM&QA, and the test activities to better manage this new program.

This section has shown that the RYG Program is a significant improvement over current procedures. Additionally, the reduced bids from habitually poor performers demonstrated that the RYG Program will provide the Navy with improved product quality. Finally, the RYG Program evaluation criteria has a firm foundation in contractual law because the two protests that were filed were found in favor of the Government.

D. ANALYSIS OF THE COSTS AND SAVINGS DUE TO IMPLEMENTATION

This section analyzes the costs and savings of implementing the RYG Program Navywide. The costs include

software development, activity start-up, training and personnel, and administrative actions. The savings include the reduced quality assurance actions.

1. Cost of Implementation

The costs associated with the RYG Program implementation are as follows:

- * Software development.
- * Activity start-up.
- * Training and Personnel.
- * Administrative actions.

a. Software Development Costs

The actual cost for the development of the software to allow RYG to be integrated with the APADE system could be defined through a statement of work if the Navy were to hire a contractor to develop the required programs. However, if the software was developed by Department of the Navy activities such as Fleet Material Support Office (FMSO), NMQAO, and NAVSUP, this software could be developed within a short period of time. [Ref. 11] The cost of development would be the salaries and overhead expenses associated with those personnel who worked on the project. These costs could be considered as sunk costs which would have been incurred with or without the project. Therefore, it is recommended that the

tasking be issued to NAVSUP to develop the software in cooperation with NMQAO and FMSO.

b. Activity Start-up Costs

Participation by a contracting activity in the RYG Program requires that they have a computer, with the capabilities listed previously in this chapter, for each purchasing agent or pair of agents involved in the Program. Initially, the only purchasing agents required to have the computers would be those whose specific task is related to material procurement, since RYG does not pertain to services. To further minimize initial costs, the RYG Program is compatible with the Navy standard Zenith 248 computers which are presently available at most contracting activities. The only additional piece of equipment required is telecommunications link (modem) with NMQAO in order to receive RYG Program updates. The cost of a top of the line 2400 baud modem with software is less than \$150.

c. Training and Personnel Costs

Each contracting activity must be concerned with the impact of introducing a new program on its current workload and on its personnel. Although this cost is difficult to estimate in monetary terms, it is probably the single most important concern expressed during interviews with contracting activity management personnel.

In these times of austere budgets and reductions in force, contracting activities are eager to find new programs or methods which will enhance efficiency and productivity without increasing the requirements placed on their workforce. It is perceived by contracting activities that there will be a high initial cost in terms of manpower investment associated with implementation of the RYG Program. However all initial investments in training and personnel costs will be overcome by the activity through the use of RYG Program.

An example of reduced personnel costs would be if the contracting office received an offer from a contractor previously unknown to them who is, however, listed in the RYG Program as a Green contractor. The contracting activity would not require additional quality assurance actions, which most certainly would have been conducted when dealing with a new offeror. The only quality assurance required would be a query of the RYG Program. In this instance the contracting activity has saved the additional personnel costs of additional research on the offeror and additional quality assurance actions, such as a Quality Assurance Letter of Instruction.

d. Administrative Costs

What is perceived by most activities as a negative factor of the RYG Program is the potential for additional unbudgeted costs associated with quality assurance actions

required if a Red or Yellow offeror should win the award of a contract under the RYG Program. If a Red or Yellow offeror wins a contract award the unbudgeted costs are mostly administrative. These costs include the addition of the quality assurance clauses listed in APPENDIXES G, H, and I, and the issuance of Quality Assurance Letters of Instruction. These costs can be easily reduced, if not completely offset, by use of computer programs which will automatically include the required clauses and Quality Assurance Letters of Instruction in the contract. This program is already under development at NMQAO.

The RYG Program also eliminates the need for unnecessary oversight of quality contractors and, instead, concentrates the oversight requirements on poor quality contractors.

2. Potential Implementation Savings

Navywide implementation of the RYG Program could save the Navy Department approximately \$39 million per year. Since implementation of the RYG Program Test, NMQAO has gathered the following data.

Awards to Red and Yellow offerors with TEA: \$7,799,917.

Awards to Red and Yellow offerors with avg. TEA: \$7,913,743.

The cost savings: \$113,826.

The cost savings above resulted from the elimination of quality assurance actions for Green offerors and a reduced level of quality assurance actions for Yellow offerors. [Ref. 16] This cost savings represents 1.5% of the total RYG contracts awarded.

Given the procurement actions for fiscal year 1988/1989 as depicted in the Survey of Contracting Statistics, NAVSUP Publication 561, (APPENDIX J) an average of both years dollar value of the total Navy contracts is \$8,623,705,000. However, this figure reflects all contract categories of which a certain portion are not applicable to the RYG Program, (i.e. service contracts, medical materials, and major weapons systems, etc.).

NAVSUP (Code 026) estimates that only 30% of the total dollar value of all the Navy's contracts are for material procurements which could apply to the RYG Program. This equates to approximately \$2.6 billion. [Ref. 17] If the Navy could save just 1.5% of the \$2.6 billion, the total savings attributable to the RYG Program would be approximately \$39 million. This extremely conservative figure offsets costs incurred during further implementation of the RYG Program.

E. INTEGRATION WITH APADE SYSTEM

To most effectively and efficiently implement the RYG Program on a Navywide basis, it should be integrated with the existing APADE system. Most large Navy Field Contracting Activities use an automated system to run their procurement called the APADE system. The APADE system is run on a Tandem mini computer which uses an intelligent terminal. Each terminal is a PC in its own right, having a 640 kilobytes RAM, 20 Megabyte hard disk drive, and a floppy drive. The operating system for these intelligent terminals is a Disk Operating System (DOS). Currently, the terminals have the capability to suspend the APADE program and access the programs stored in the hard disk drive. This allows the buyer to use programs for word processing or spreadsheets. This process does not involve exiting the APADE program but merely suspending its operation for the individual terminal.

The RYG Program was designed to be compatible with the APADE hardware and operate from the intelligent terminal. If the RYG Program were installed onto the APADE terminals with the proper software interface to allow the user to toggle out of APADE and into the RYG Program, the buyer would have the flexibility to use the RYG Program with a minimum of effort and wasted time.

A major stumbling block to the integration of the APADE system and the RYG Program has been the difficulty of updating the RYG data base. A large contracting activity with 50 or more terminals would require an individual to update each terminal, resulting in many lost hours. However, with the proper interface, the update of the RYG data base can be accomplished in the same manner currently in place for use with the Enable program. The Enable program is a spreadsheet as part of the intelligent terminal and completely external of the APADE software. With the interface in place, an activity with the APADE system would receive the RYG update via modem. The update would then be loaded on the Tandem mini computer, and as each terminal is brought on line, the program interface would search for the update. Once located, the program would automatically process the update into the RYG data base stored in the terminal.

The RYG Program was designed to be compatible with the existing APADE system. The software to allow these two systems to complement each other could be developed and installed within a minimum amount of time and at relatively low cost. This integration, while effective, expedient, and inexpensive, is still only a temporary solution. The ultimate goal must remain a totally integrated system of procurement where both systems will work together and function as one.

F. ALTERNATIVES TO RED/YELLOW/GREEN

Currently, there are no other Navy alternatives which are ready for full implementation like the RYG Program. However, NAVSUP (Code 026), Director of Procurement Automation and Enhancement, is developing a contractor information system called the Buyer Information System (BIS). BIS is a new system which incorporates the basic RYG Program classification data base, General Services Administration (GSA) suspended and debarred list, Commercial and Government Entity (CAGE) files from Defense Logistics Studies Information Exchange (DLSIE), Navy Vendor Data Analysis Report (VDAR), and various business information from Dunn and Bradstreet. This new program takes the concept of tracking contractor quality history to a new level. While the RYG Program provides the Contracting Officer with a snapshot of the potential contractor's past quality performance, the BIS provides a contractor profile by displaying 6 months of historical data. From this profile the Contracting Officer can then assess not only the current status of the contractor as with the RYG Program but also any trends in the contractor's performance and financial stability. The BIS Program is currently available to approximately 50 contracting activities through the Procurement Management Reporting System (PMRS). NAVSUP (Code 026) estimates that to fully implement the BIS will require

approximately \$1.6 million dollars for hardware procurement and software development.

The BIS data base is 240 to 280 megabytes in size. Because of the amount of data contained in BIS, individual activities will require new computers with the 80386 chips and capable of having an expanded memory of 2 megabytes or greater.

The BIS program has the potential to be an outstanding program, but full implementation of BIS is at least 5 years away. The RYG Program, on the other hand, is ready for implementation immediately. Additionally, implementation of the RYG Program would increase the contractor data base and thus provide better data to effectively start up the BIS program.

G. SUMMARY

This chapter analyzed the RYG Program elements, test performance, cost and savings, integration, and alternatives. The analysis of the test performance and cost savings shows the RYG Program to be a viable program with potential of saving the Navy millions of dollars a year. The research indicates that there are no Navy alternatives to the RYG Program which are available for immediate implementation. Finally, integration of the RYG Program with the APADE system

has been identified as the most effective means of implementation.

The next chapter addresses the impediments and benefits of implementing the RYG Program to determine whether implementation is feasible.

IV. IMPEDIMENTS AND BENEFITS OF IMPLEMENTATION

A. INTRODUCTION

This chapter discusses the impediments to and potential benefits of Navywide implementation of the RYG Program. The impediments and benefits discussed in this chapter resulted from information gathered from the following meetings and a site visit.

1. The RYG Program Test wrap up meeting, held in Washington D.C., 5 March 1991.

2. The Naval Air Systems Command briefing on the Quality Deficiency Report inputs into the CES/PDREP data base, held in Washington D.C., 6 March 1991.

3. Site visit to NMQAO in Portsmouth N.H., 7 and 8 March 1991.

Additionally, information was gathered through personal and telephone interviews, RYG Program Test status reports and test site status reports.

B. IMPEDIMENTS

The impediments to Navywide implementation of the RYG Program must be considered in the initial stages of the program. Any single impediment, if severe enough, can

overshadow all potential benefits. This section will discuss the three most significant impediments to the successful implementation of the RYG Program:

- * Integration of the RYG Program with current procurement systems.
- * The perception of "Constructive Debarment"
- * Personnel resistance to the RYG Program.

1. Lack of Integration of the RYG Program with Current Procurement Systems

The lack of system integration is the strongest single argument from field activities against the RYG Program. The investment of scarce resources on a project which may not become an integrated part of the procurement system deters potential participants from implementing the RYG Program. Initially all activities which participated in the RYG Program Test and those interviewed as prospective participants in the program were very optimistic about the RYG Program ability to improve product quality. [Ref. 7] However, based on the current inability of the RYG Program to integrate with APADE, which results in using two computer systems (one for the RYG Program and another for APADE), these same individuals rapidly lost their enthusiasm. For example, Portsmouth Naval Shipyard elected not to participate in the RYG Program until the system had been approved for integration with the APADE system.

[Ref. 18] The primary objection with this dual processing system were:

- a. The additional work load which would be placed upon their personnel resources.
- b. The additional start up costs that the activity may have to bear in order to make two computer systems available for the purchasing agents.

In the current environment of constantly shrinking budgets and reduced manpower resources, a contracting activity must use its limited resources wisely. The implementation of the RYG Program without integration with APADE will create additional work for the contracting activity due to the increased operational and maintenance needs of a dual computer system. For example, the periodic maintenance of the RYG Program data base requires that monthly updates occur; however, without integration with APADE, this requires that each micro-computer data base be updated. In an integrated environment, these updates can be accomplished via software from the mainframe computer with a minimum of human intervention.

The requirement to implement the RYG Program without the benefit of integration would require the contracting activity to invest funds to cover start-up costs. These costs reflect the need to buy additional hardware such as computers,

printers, and keyboards. This hardware will also require furniture such as desks and printer stands to support the new computer system.

The practical solution to the funding issue is to integrate those systems. This will allow the contracting activities to avoid the cost of new hardware and support equipment. In addition, these activities would realize future savings in the form of a more efficient and effective procurement workforce. Integration will result in purchasing agents having to use only one terminal, which has the ability to switch from APADE to the RYG Program, and to use one program for the automated application of TEAs. These factors help make an integrated program attractive to the field activities.

2. The Perception of Constructive Debarment

Constructive debarment is defined as the process by which an individual or group of contractors are prevented from bidding and/or winning an award of a contract without due process of law. The application of TEAs to an offeror's proposal, which effectively raises the price of their bid, may be perceived by contractors as a form of constructive debarment.

Under the RYG Program, a TEA is added to a Red or Yellow contractor's offer when the Contracting Officer is

evaluating the offers. The TEA represents the expected cost to the Government of additional quality assurance measures. These measures must be taken to ensure a historically poor quality performer delivers material which conforms to the requirements in the contract.

The RYG Program, in and of itself, does not constructively debar a company because after the application of the TEA, any contractor, including the ones with a Red classification, can still win the award if they continued to be the low responsible offeror. Additionally, if a Red or Yellow contractor does win the award, the Government will incur the costs represented by the TEA.

The application of TEA does not prevent any contractor from competing and winning a contract. [Ref. 5] The TEA merely represents a cost to the Government of doing business with a Red or Yellow contractor. The cost is directly attributable to the contract, and to the past performance of the particular contractor. The intent of the RYG Program is not to debar Red or Yellow contractors, but to help insure that the Government receives the quality product it requires.

During the test period, there were no protests citing constructive debarment as the reason. Additionally, during the planning phase of the RYG Program, the Office of General Counsel, Department of the Navy, presented the opinion that

the application of TEAs based upon a contractor's past performance did not constitute constructive debarment. [Ref. 19] However, while investigating this area of concern, two situations were discovered where, through abuse of information contained in the RYG Program, a case for constructive debarment could be made.

The first occurs when a Yellow contractor displaces a Red contractor and the Contracting Officer decides not to apply the appropriate quality assurance actions. This constructively debar the Red offeror from the competition because the TEA, which was used to displace the Red offeror, is now not part of the cost of the procurement. Since both offerors required some additional quality assurance action, the TEA must be enforced to ensure that the source selection process remains fair and impartial.

The second instance occurs in the area of small purchase where a synopsis of the solicitation is not required. Contained in the current RYG Program is a sort routine by color classification which any activity can run to produce a list of all contractors contained in the RYG data base. A constructive debarment situation could occur when an activity uses a solicitation list made up of only contractors assigned the Green classification. This procedure constructively debar all Red and Yellow contractors from participation.

With the implementation of the RYG Program, the instructions which govern the program must be strengthened to include guidance that attempts to prevent these potential abuses. The guideline for the first situation should prevent the Contracting Officer from eliminating in contract administration the required quality assurance actions associated with the application of TEAs. While this guideline is already contained in the test procedure instructions, the significance of this procedure was not clear and therefore must be emphasized. [Ref. 1]

Further guidance must be provided on the use of the contractor classification list. This guidance would assist the procurement agents and help prevent the potential abuses of the RYG contractor information. The guidance must allow the contracting activity to produce a listing of all contractors of a particular commodity to be used on a bidder's mailing list. However, it is recommended that the listing be provided in alphabetical order and without color classifications. In this manner, the purchasing agent is able to rotate the solicitations without the possibility of constructively debarring a contractor.

An additional solution to both the abuse of the RYG contractor information and the non-application of required quality assurance actions is to conduct a thorough training

session for each new site that implements the RYG Program. This training should be under the joint cognizance of NMQAO and NAVSUP. The training must include abuse awareness and consequences and legal modules to prevent the occurrences of constructive debarment actions. The training can be conducted in a classroom environment or through the use of video taped instructions.

3. The Personnel Resistance to the RYG Program

Another strong impediment to the RYG Program implementation is the resistance of contracting personnel to willingly embrace this new method of doing business. As with any new program, the RYG Program brings with it the initial disruption of normal daily operations. The implementation of the RYG Program requires contracting personnel to learn a new computer program, source selection evaluation methodology, procedures, and even a new vocabulary. Based on interviews and conversations with contracting activities, the implementation of the RYG Program is viewed by their personnel as being burdensome, rather than beneficial, because of disruption of normal operations, personnel training, comprehension, and instruction. These concerns stem from the lack of a clear understanding of the RYG concept and the procedures required by the program.

To successfully overcome this impediment, the managers of the implementation process must develop a plan that takes these concerns into account. An orientation and training program should be considered to ease the disruption of normal operation and provide a foundation for the acceptance and comprehension of the RYG Program. The personnel involved must be convinced that the implementation and use of the RYG Program will benefit the activities and the Government.

4. Other Potential Impediments Considered

Two additional concerns were brought up by contracting personnel who considered using the RYG Program:

a. The requirement for a Certificate of Competency (CoC) from the Small Business Administration (SBA) when a small business is displaced and does not receive the award. The researcher discovered that prior to the initial RYG Program Test, the SBA and the Office of the General Counsel, Department of the Navy were consulted on this matter. The final decision was that a CoC was not required because application of a TEA as an evaluation factor was appropriate. The CoC dealt with the determination whether a contractor was responsible or not. It did not apply to the method of source selection.

b. The other area of concern was the possible resistance to the RYG Program by competing contractors. The

initial classification letters sent to the contractors were received with some resistance, particularly from the Red and Yellow classified contractors. These contractors, in turn were provided with the supporting documentation which drove the classification rating. Once this was done and a contractor was convinced that the system integrity was intact, the resistance dissipated.

Since both of these potential impediments have been either solved by previous groundwork or failed to materialize as a major problem, these concerns are not potential impediments to the successful RYG Program implementation.

5. Summary

This section discussed the most important impediments that must be overcome if the RYG Program is to meet success when it implemented for use on a Navywide basis. The three impediments fell into the following broad categories: (1) computer hardware and software issues, (2) legal issues and (3) people issues. As a result of the research, a potential common solution to all the impediments is an implementation plan that incorporates mandatory education and training for all the personnel who will be involved with the program. The following section will discuss the benefits that could be gained by implementing the RYG Program.

C. BENEFITS

This section will address the three most important benefits to be gained by fully implementing the RYG Program:

- * The reduction of quality assurance requirements.
- * Availability of the RYG Program for immediate use.
- * Availability of centralized automated information.

The evaluation of the above benefits will revolve around the measurement of the benefits, the opposition to the benefits, and the ability of the benefit to overcome the impediments to the RYG Program.

1. The Reduction of Quality Assurance Requirements

The RYG Program helps assure the most efficient use of scarce resources. With the implementation of the RYG Program, the need for Government quality assurance requirements will be determined by the color classification of the contractor and the reasons for the classification (see APPENDIX A and B). The Contracting Officer will not have to make a decision concerning quality assurance requirements on every procurement subject to the RYG Program.

The RYG Program uses predetermined requirements for quality assurance actions. This provides the contracting personnel with a road map to apply quality assurance actions when required and will significantly reduce time-consuming

efforts required when researching a contractor's past performance.

A contractor's past performance history determines their RYG color classification. As such, the contractor is ultimately responsible for the quality assurance requirements the Navy imposes. The top-rated quality performers (Green contractors) will be free of the added burden of constantly having the Navy looking over their shoulder.

This savings in costs associated with the reduction in quality assurance requirements has been measured since the beginning of the RYG Program Test. As seen in APPENDIX K, the cost avoidance savings through 28 February 1991, directly attributable to the reduction of quality assurance requirements is estimated to be in excess of \$113,000. These savings were the result of only five test site data and 152 FSCs.

The potential improvement in Government/contractor relationships is obviously more difficult to measure. However, given the current trend in the Department of Defense towards Total Quality Leadership (TQL), it is essential that this intangible benefit receive consideration. Responding to the tenets of TQL, the Navy should seek to foster trusting and businesslike relationships with its contractors. The elimination of unnecessary quality assurance actions for

proven quality contractors will help to bring this closer to reality.

There is no opposition to the benefit derived from the reduction in quality assurance requirements. However, the measurement and the impact of the benefit is a matter for considerable debate. Even the most pessimistic view of this benefit acknowledges that the Navy will save money by the elimination of unnecessary quality assurance requirements.

In the current environment of reduced spending, the fact that the RYG Program has demonstrated a potential to save millions of dollars is obviously the benefit which can help overcome the impediments previously discussed.

2. Availability of the RYG Program for Immediate Use

The RYG Program, although not perfect in every respect, is ready for Navywide implementation. The results of the test period have proven the program to be an effective method of source selection. This thesis has discussed several problems as well as suggestions to overcome them that will help make the implementation process more effective. To oppose the benefit of immediate use, there must be an available alternative to the RYG Program which provides a clear method of Navywide source selection improvement. None of the programs available use a Navywide data base to collect contractor quality data. These alternative programs use a

centralized data base similar to that of the RYG Program but lack the functional ability to translate the information into quality assurance actions. Furthermore, these alternative programs are years away from being available for implementation.

The RYG Program is the only automated source selection improvement program which provides the Contracting Officer with a method of selecting a superior quality contractor. Furthermore, it is available for immediate implementation.

3. Availability of Centralized Automated Information

The RYG Program is capable of providing contracting activities Navywide with easy access to contractor quality performance data on Government contractors. This centralized automated data base not only provides contracting activities with up to date contractor performance data for use in source selection but it also allows them to use an FSC sorted listing to assist in finding sources.

The RYG data base is very dynamic. As the RYG Program expands, more activities will submit information for the data base. This will improve the individual contractor quality histories as well as increase the number of contractors covered. The RYG Program is also dynamic in the sense that as new information is received the data base is updated to

reflect an accurate picture of the quality performance which can be expected from a contractor.

With the advent of sophisticated computer networks and mainframe computers which have the ability to handle massive amounts of data, a truly integrated network data base has become possible. The RYG Program is the beginning of a network that eventually could come to be one of the most important information networks in the Navy. The RYG Program will put to practical use a data base which was under utilized.

During interviews with test site contracting personnel, they expressed concern with the program's monthly updates. They felt that more frequent updates were necessary to maintain the integrity of the program. The update process can be modified to meet the changing needs of the program. If more frequent updates become necessary, that procedure is easily implemented.

The benefits derived from the availability of the centralized automated data base are not easily measured but the availability of the data base is an important link which makes the overall program more attractive for implementation.

D. SUMMARY

This chapter presented the impediments and benefits resulting from implementation of the RYG Program. The impediments discussed can not be ignored and all reasonable efforts should be undertaken to alleviate the concerns expressed. Dealing with these concerns will help facilitate the implementation process and create the best environment for success of the RYG Program.

The final chapter will present the conclusions and recommendations of this thesis. The answers to the research questions will also be presented.

V. CONCLUSIONS AND RECOMMENDATIONS

A. ANSWERS TO THE RESEARCH QUESTIONS

1. Should the Navy implement the RYG Program for all acquisition/procurement?

The Navy should implement the RYG Program because significant cost avoidance savings can result from its use. However, the RYG Program does not apply to all types of procurement. The RYG Program is best suited for use in procuring supply and not service type requirements. The specific federal supply classes that apply to the program have been determined and more are being considered.

The source selection methodology being used by the RYG Program relies heavily upon the application of TEAs to determine the best qualified source. The results of this research indicated that use of TEAs is better suited for simple and smaller dollar value procurements. Therefore, the RYG Program is best suited for use in small purchase procedures where the maximum award is less than \$25,000. For those requirements over \$25,000, it is the opinion of the researcher that the RYG Program is best suited for those procurements with an estimated value between \$25,000 and

\$100,000. At this value the application of the TEAs still have an effect on the source selection process.

2. Is the versatility of the RYG Program sufficient to meet the requirements of Navywide procurement?

This thesis has discussed the application of the RYG Program to small purchase, major purchase with TEA and Fixed Price/Greatest Value methods. Additionally, the RYG Program can be used as a stand alone program or integrated with the APADE system. While the RYG Program is not perfect for all procurements, it is versatile enough to meet the needs for the normal supply type procurements.

3. Can the RYG Program be integrated with current procurement practices?

The RYG Program was designed to meet current contracting practice requirements. The RYG Program has been reviewed by the Office of the General Counsel, Department of the Navy, prior to the initiation of the test period and found to be legally sound.

The results of this research revealed that the RYG Program provides the Navy with an excellent method of improving source selection while continuing to provide the contractors with a fair opportunity to win the competition. RYG Program implementation will require that solicitations under the program stipulate that price and quality be used as

evaluation factors. This practice, while not used all the time, is still an accepted part of the procurement process. In conclusion, the implementation of the RYG Program will not require substantive changes in the current procurement practices and thus can easily be integrated.

4. Can the current RYG Program be expanded to include all contractor quality history data for the entire Navy procurement system?

The CES/PDREP and RYG Program data bases are compiled and manipulated by NMQAO. The computer upon which these programs are run is also used for many different applications. Because the current data are stored on external memory devices and archived into permanent storage files after one year, the RYG Program is limited only by the capability of the host computer. The current host computer system is sufficient to meet the computing needs of the RYG Program following full Navywide implementation.

B. CONCLUSIONS

The following conclusions were reached after the completion of the research effort for this thesis:

1. The RYG Program should be implemented immediately.

The RYG Program has successfully completed its initial test and is considered ready for Navywide implementation.

Other source selection improvement programs are still in their developmental phases and have not received permission to continue into a test period. While these programs may improve on the RYG Program concept with new and improved computers and software, they are still years and many millions of dollars away from full implementation.

2. Implementation of the RYG Program could benefit the Navy by saving a significant amount of money in cost avoidance savings.

Implementation of the RYG Program could result in significant savings to the Navy through cost avoidance. While the estimates of cost savings vary from as little as \$38 million to more than \$440 million annually, both proponents and critics of the RYG Program do agree that there are significant tangible savings to be obtained through implementation. The savings will result from the reduced quality assurance requirements, reduced cost for repair and return, and reduced procurement resulting from better quality material.

3. The RYG Program should be integrated with the APADE System.

The RYG Program as a stand alone program is very efficient as a source selection tool. However, for maximum

effectiveness and ease of implementation, the RYG Program should be integrated with the APADE system. By integrating the RYG Program with the APADE system, the contracting activity will have an automated procurement program and a source selection improvement program available in a functional and user friendly format on a single computer.

4. The RYG Program is best suited for small purchases.

The RYG Program source selection methodology relies on the application of the TEAs to displace poor quality performers. The TEA represents the cost to the Government of actual quality assurance requirements. The TEA for a particular color classification will remain the same whether the contract is for \$5,000 or \$500,000. The greatest impact and therefore the greatest benefit for the Navy will be on the lower valued requirements, where the possibility of displacement of the poor quality contractor is greater.

5. The RYG Program should not be implemented for Navywide use in Fixed Price/Greatest value procurements.

The Fixed Price/Greatest value portion of the RYG Program Test did not provide sufficient data to make an assessment of its value. With only two test sites using the Fixed Price/Greatest Value method on a limited number of procurements, more testing is required prior to a decision being made on its use.

C. RECOMMENDATIONS

1. The Commander, Naval Supply Systems Command (NAVSUP) should take the lead and implement the RYG Program in the Navy Field Contracting System.

The Naval Supply Systems Command is responsible for the Navy Field Contracting System that is made up of approximately 1000 commands with varying levels of contracting authority. NAVSUP is also responsible for the APADE automated procurement system; therefore, they are perfectly positioned to direct the implementation of the RYG Program. NAVSUP would provide a central point of contact for information, direction and training on the implementation of the RYG Program.

2. NMQAO should assist NAVSUP with the development of the required training for the implementation of the RYG Program.

NMQAO is responsible for the development and maintenance of the RYG Program and CES/PDREP data bases. In this capacity, NMQAO is the most qualified organization to provide the necessary training and technical assistance. In order for the implementation of the RYG Program to progress smoothly, a training program must be established to cover not only the RYG Program methods and procedures but also program benefits. The benefits, including the cost savings, reduced

workload, and reduction of oversight requirements, must be thoroughly understood to minimize the potential personnel resistance to the implementation of the RYG Program.

3. The Navy should continue to research and develop new source selection improvement programs.

The RYG Program provides the contracting officer with a very effective tool that can be used in the source selection process for supply type requirements. There are, however, many other types of requirements which the RYG Program does not cover. The implementation of RYG Program should not signify the end of other source selection improvement programs. Further research and development of source selection improvement programs should continue.

D. AREAS FOR FURTHER RESEARCH

There are three areas which require further research:

1. BUYER INFORMATION SERVICE.

Since the Buyer Information Service (BIS) is a new source selection improvement program under development, research to determine the merits of BIS is recommended.

2. MATERIAL QUALITY.

The material quality is the most difficult area of the RYG Program to measure. A baseline study of material reject rates for the five test sites which would include contracts

issued prior to and during the test period would be extremely valuable to determine the actual material quality improvement attributable to the RYG Program.

3. DEPARTMENT OF DEFENSE IMPLEMENTATION OF A
SOURCE SELECTION IMPROVEMENT PROGRAM.

Another area of research would be to discuss and compare the different source selection improvement programs being used in the Department of Defense.

APPENDIX A: RED/YELLOW/GREEN EVALUATION CRITERIA
CODES AND DEFINITIONS

<u>COLOR</u>	<u>CODE</u>	<u>EVALUATION CRITERION</u>
RED	A	ON CURRENT NAVY VDAR
	B	METHOD C, D, AND/OR E CURRENTLY IN EFFECT
	C	QUALITY INFORMATION ON LATEST PRE-AWARD SURVEY (PAS) WITHIN LAST YEAR - NO AWARD
	D	LATEST PRODUCT-ORIENTED SURVEY (POS) IN LAST YEAR UNACCEPTABLE
	E	LATEST QUALITY SYSTEM REVIEW (QSR) IN LAST YEAR UNACCEPTABLE
	F	LATEST SPECIAL SURVEY IN LAST YEAR UNACCEPTABLE
	G	REJECT RATE 15% OR MORE IN LAST YEAR FOR 2 OR MORE LOTS
	H	LATEST TWO FIRST ARTICLE TESTS (FAT) IN LAST YEAR UNSATISFACTORY
	J	2 OR MORE CATEGORY "I" QDRS IN THE LAST YEAR
	K	6 OR MORE CATEGORY "II" ACTION QDRS IN THE LAST YEAR
	N	ON DLA CONTRACTOR ALERT LIST FOR MAJOR DEFICIENCIES

RED/YELLOW/GREEN EVALUATION CRITERIA

CODES AND DEFINITIONS

YELLOW	A	ISSUED VDAR LETTER OF CONCERN
	B	PREVIOUSLY CLASSIFIED "RED" - NOT WITHIN RED EVALUATION RANGE
	C	LATEST QUALITY PAS WITHIN LAST YEAR - AWARD WITH FINDINGS
	D	LATEST POS IN LAST YEAR ACCEPTABLE WITH CORRECTIONS
	E	LATEST QSR IN LAST YEAR ACCEPTABLE WITH CORRECTIONS
	F	LATEST SPECIAL SURVEY IN LAST YEAR ACCEPTABLE WITH CORRECTIONS
	G	REJECT RATE 6-14% FOR 2 OR MORE REJECTED LOTS IN LAST YEAR
	H	LATEST FAT IN LAST YEAR UNSATISFACTORY
	J	ONE CATEGORY "I" QDR IN LAST YEAR
	K	3-5 CATEGORY "II" ACTION QDRS IN LAST YEAR
	N	ON DLA CONTRACTOR ALERT LIST FOR MINOR DEFICIENCIES
	P	PREVIOUSLY RED - NO REJECTS FOR 5 OR MORE LOTS IN LAST 6 MONTHS

RED/YELLOW/GREEN EVALUATION CRITERIA

CODES AND DEFINITIONS

GREEN	C	LATEST PAS IN LAST YEAR - AWARD WITH NO FINDINGS
	D	LATEST POS IN LAST YEAR ACCEPTABLE
	E	LATEST QSR IN LAST YEAR ACCEPTABLE
	F	LATEST SPECIAL SURVEY IN LAST YEAR ACCEPTABLE
	G	REJECT RATE LESS THAN 6% FOR 5 OR MORE LOTS IN LAST YEAR
	H	ALL FAT IN LAST YEAR SATISFACTORY
	K	0-2 CATEGORY "II" ACTION QDRS IN LAST YEAR AND G APPLIES
	P	PREVIOUSLY YELLOW - NO REJECTS FOR 5 OR MORE LOTS IN LAST 6 MONTHS

APPENDIX B: GUIDELINE FOR TEA ASSIGNMENT

RED CLASSIFICATION

<u>CODE</u>	<u>ADDITIONAL QA REQUIREMENTS</u>
A	1a or 1b, 2a or 2b, 3, 4, 5 or 6, 7
B	1a or 1b, 2a or 2b, 4, 5 or 6, 7
C	1a or 1b, 4, 5 or 6, 7
D	1a or 1b, 4, 5 or 6, 7
E	1a or 1b, 2a or 2b, 4, 5 or 6, 7
F	1a or 1b, 4, 5 or 6, 7
G	1a or 1b, 3, 4, 5 or 6, 7
H	1a or 1b, 2a or 2b, 4, 5 or 6, 7
J	1a or 1b, 2a or 2b, 3, 4, 5 or 6, 7
K	1a or 1b, 3, 4, 5 or 6, 7
N	1a or 1b, 2a or 2b, 3, 4, 5 or 6, 7

YELLOW CLASSIFICATION

A	1a or 1b, 3, 4, 5 or 6, 7
B	1a or 1b, 3, 4, 5 or 6, 7
C	1a or 1b, 4, 5 or 6
D	4, 5 or 6
E	4, 5 or 6
F	4, 5 or 6

APPENDIX B

GUIDELINE OF TEA ASSIGNMENT

<u>CODE</u>	<u>ADDITIONAL QA REQUIREMENTS</u>
G	4, 5 or 6, 7
H	2a, 4, 5 or 6, 7
J	4, 5 or 6, 7
K	4, 5 or 6, 7
N	2a, 4, 5 or 6
P	1a or 1b, 4, 5 or 6, 7

NOTE: The additional quality assurance actions depicted in this appendix are the RYG Program requirements. The abbreviations listed (ie: 1a or 2a) correspond to the quality assurance actions provided in APPENDIX D.

APPENDIX C: SMALL PURCHASE TEAs

RED CLASSIFICATION

Government Source Inspection ¹⁰	\$500*
Receipt Inspection as Destination (Navy Rep) ¹⁵	\$1,194
Quality Assurance Letter of Instruction ¹⁷	<u>\$755</u>
	\$2,449

YELLOW CLASSIFICATION

Government Source Inspection ¹⁰	\$500*
Quality Assurance Letter of Instruction ¹⁷	<u>\$755</u>
	\$1,255

* Actual DCMC costs

APPENDIX D: MAJOR PURCHASE TEAs

<u>Quality Assurance Actions</u>	<u>Estimated Cost</u>
1. Pre-Award Survey	
a. DCMC	\$500*
b. PCO Representative Participation	
(1) Local ¹	\$775
(2) Intermediate ²	\$1,380
(3) Distant ³	\$2,095
2. Post-Award Orientation	
a. DCMC	\$550*
b. PCO Representative Participation	
(1) Local ⁴	\$1,075
(2) Intermediate ⁵	\$2,110
(3) Distant ⁶	\$3,590
3. Product Oriented Survey (PCO Representative / DCMC)	
a. Local ⁷	\$800**
b. Intermediate ⁸	\$1,500**
c. Distant ⁹	\$2,215**
4. Government Source Inspection ¹⁰	\$500*
5. Receipt Inspection at Source (Navy and DCMC)	
a. Local ¹¹	\$650***
b. Intermediate ¹²	\$1,360***
c. Distant ¹³	\$2,182***

MAJOR PURCHASE TEAs

6. Receipt Inspection at Destination (Navy)

a. Low ¹⁴	\$597
b. Medium ¹⁵	\$1,194
c. High ¹⁶	\$2,332

7. Quality Assurance Letter of Instruction¹⁷ \$755***

Notes: (1) Except for actual DCMC costs, as noted, the above costs are samples. Actual costs may vary between activities, based on each activity's stabilized manhour rate.

* actual DCMC cost

** includes actual DCMC cost - \$400

*** includes actual DCMC cost - \$275

APPENDIX E: TEA CALCULATIONS

¹Calculated $\$30/\text{hr} \times 8 \text{ hrs} = \$240 + \$35 \text{ mileage} = \$275 + \$500$.

²Calculated $\$30/\text{hr} \times 8 \text{ hrs} = \$240 + \$240$ (8 hrs travel @ $\$30/\text{hr}$) + $\$200$ (2 days per diem @ $\$100/\text{day}$) + $\$200$ travel costs = $\$880 + \500 .

³Calculated $\$30/\text{hr} \times 8 \text{ hrs} = \$240 + \$480$ (16 hrs travel @ $\$30/\text{hr}$) + $\$300$ (3 days per diem @ $\$100/\text{day}$) + $\$575$ travel costs = $\$1,595 + \500 .

⁴Calculated $\$30/\text{hr} \times 16 \text{ hrs} = \$480 + \$45 \text{ mileage} = \$525 + \$550$.

⁵Calculated $\$30/\text{hr} \times 16 \text{ hrs} = \$480 + \$480$ (16 hrs travel @ $\$30/\text{hr}$) + $\$400$ (4 days per diem @ $\$100/\text{day}$) + $\$300$ travel costs = $\$1,660 + \550 .

⁶Calculated $\$30/\text{hr} \times 16 \text{ hrs} = \$480 + \$960$ (32 hrs travel @ $\$30/\text{hr}$) + $\$600$ (6 days per diem @ $\$100/\text{day}$) + $\$1,000$ travel costs = $\$3,040 + \550 .

⁷Calculated $\$30/\text{hr} \times 12 \text{ hrs} = \$360 + \$40 \text{ mileage} = \$400 + \$400$ (DCAS costs).

⁸Calculated $\$30/\text{hr} \times 12 \text{ hrs} = \$360 + \$240$ (8 hrs travel @ $\$30/\text{hr}$) + $\$300$ (3 days per diem @ $\$100/\text{day}$) + $\$200$ travel costs = $\$1,100 + \400 (DCAS costs).

⁹Calculated $\$30/\text{hr} \times 12 \text{ hrs} = \$360 + \$480$ (16 hrs travel @ $\$30/\text{hr}$) + $\$400$ (4 days per diem @ $\$100/\text{day}$) + $\$575$ travel costs = $\$1,815 + \400 (DCAS costs).

¹⁰Calculated $\$34.18/\text{hr} \times 14 \text{ hrs}$.

¹¹Calculated $\$43/\text{hr} \times 8 \text{ hrs} = \$344 + \$31 \text{ mileage} = \$365 + \$265$ (DCAS costs).

¹²Calculated $\$43/\text{hr} \times 8 \text{ hrs} = \$344 + \$344$ (8 hrs travel @ $\$43/\text{hr}$) + $\$200$ (2 days per diem @ $\$100/\text{day}$) + $\$200$ travel costs = $\$1,088 + \275 (DCAS costs).

¹³Calculated $\$43/\text{hr} \times 8 \text{ hrs} = \$344 + \$688$ (16 hrs travel @ $\$43/\text{hr}$) + $\$300$ (3 days per diem @ $\$100/\text{day}$) + $\$575$ travel costs = $\$1,907 + \275 (DCAS costs).

¹⁴Calculated $\$43/\text{hr} \times 4 \text{ hrs} = \$172 + \$100$ material handling + $\$325$ test costs.

¹⁵Calculated $\$43/\text{hr} \times 8 \text{ hrs} = \$344 + \$200$ material handling + $\$650$ test costs.

¹⁶Calculated $\$43/\text{hr} \times 24 \text{ hrs} = \$1,032 + \$500$ material handling + $\$800$ test costs.

¹⁷Calculated DCAS @ $\$34.18/\text{hr} \times 8 \text{ hrs} = \$275 + \$480$ (procurement representative @ $\$30/\text{hr} \times 16 \text{ hrs}$).

APPENDIX F: FIXED PRICE-GREATEST VALUE SAMPLE EVALUATION

Source Selection/Evaluation Method

(The following example is illustrative of a source selection/evaluation method incorporated by RYG test procedures)

Total Points (MAX)	=	100 points (%)
Total Technical	=	60 points (%)
Total Price	=	40 points (%)

<u>CES Classification</u>	<u>Technical Score</u>
Green	60 points
Yellow	35 points
Red	10 points
Insufficient Data	60 points

Price Score

Within 0 percent- 5 percent of low offeror:	GREEN
Within 5+ percent-15 percent of low offeror:	YELLOW
Within 15 percent of low offeror:	RED

Green	40 points
Yellow	26 points
Red	13 points

POSSIBLE OUTCOMES

RANKING	COLOR		SCORE		TOTAL SCORE
	TECH	PRICE	TECH	PRICE	
1	G	G	60	40	100
2	G	Y	60	26	86
3	Y	G	35	40	75
4	G	R	60	13	73
5	Y	Y	35	26	61
6	R	G	10	40	50
7	Y	R	35	13	48
8	R	Y	10	26	36
9	R	R	10	13	23

APPENDIX G: SIMPLIFIED SMALL PURCHASE CLAUSES

NOTICE TO PROSPECTIVE OFFERORS (NOV 1988)

(a) This procurement is subject to a test of the Navy's Contractor Evaluation System (CES), "Red/Yellow/Green" (RYG) program. The test is authorized by the Assistant Secretary of the Navy (Shipbuilding and Logistics) for the acquisition of specific commodities within designated Federal Supply Classes (FSCs) by participating test activities.

(b) The Government reserves the right to award to the contractor whose offer represents the best overall purchase value to the Government. As such, the basis for contract award will include an evaluation of proposed contractor's past quality performance history on the particular commodity or commodities, identified below, as recorded in the CES. The price to be considered in determining best value will be the evaluated price after Technical Evaluation Adjustments (TEA)s for related quality assurance actions, as applicable, are applied to the offered price.

(c) The procedures described in the clause of this solicitation entitled "ADDITIONAL EVALUATION FACTOR--TEST OF CONTRACTOR EVALUATION SYSTEM (NOV 1988)" will be used by the contracting officer to assist in determining the best purchase value for the Government--price, past quality performance, and other factors considered.

(d) The commodities included in this test, as currently solicited, are:

<u>FSC No.</u>	<u>FSC Nomenclature</u>	<u>CLIN</u>
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ADDITIONAL EVALUATION FACTORS--TEST OF CONTRACTOR EVALUATION SYSTEM (NOV 1988) (SIMPLIFIED SMALL PURCHASE PROCEDURES)

(a) This procurement is part of a test of the Navy's Contractor Evaluation System (CES) "Red/Yellow/Green" (RYG) Program, authorized by the Assistant Secretary of the Navy (Shipbuilding and Logistics), for the acquisition of specific commodities by participating activities. At the end of the test, data concerning awards made during the period will be evaluated to assess the program's effectiveness and impact on the acquisition process.

(b) The purpose of RYG is to assist contracting personnel during source selection to determine the best value for the Government--price, past quality performance, and other factor considered. The test program uses accumulated contractor quality performance on selected commodities as either "Red" (high risk), "Yellow" (moderate risk), "Green" (low risk), or "Insufficient Data", based on the degree of risk to the Government of receiving poor quality products. Such classifications are then used to apply Technical Evaluation Adjustments (TEA)s during source selection.

(c) A TEA is a monetary assessment added to the price of selected commodities that have been classified as either "Red", or "Yellow" for specific contractors, and is based on the cost to the Government for effecting additional quality considerations that would otherwise not be required if award were made to a contractor with a satisfactory performance history. For purposes of requirements using the simplified small purchase procedures, standardized TEAs have been established for the "Red" and the "Yellow" classifications. During evaluation of quotations, the applicable TEA is added to the quoted price of the "Red" and/or "Yellow" commodity, and after consideration of any other pertinent price-related factors (e.g., transportation charges, First Article Testing, discount terms, etc.), becomes the basis for determining award of the purchase order. A commodity's classification may change over time as new or revised quality performance data become available.

(d) Classifications for the test program are summarized as follows:

"Green"--Low risk. No extraordinary quality requirements or additional actions required; satisfactory quality history.

"Yellow"--Moderate risk. History of quality problems; special quality requirements/actions needed; Technical Evaluation Adjustments (TEA) applied to offered price.

"Red"--High risk. Special alert to history of poor quality performance; TEA applied to offered price(s), and contract award requires higher level approval.

"Insufficient Data"--Generally, may be commodities of first-time offerors or offerors for whom current, up-to-date quality performance history is unavailable; additional quality actions may be needed and invoked; however, a TEA is not assessed.

(e) Prospective offerors may address questions with regard to their assessment classification on particular commodities to: Naval Sea System Command Detachment, Naval Material Quality Assessment Office (NMQAO), Federal Building, Room 423, 80 Daniel Street, Portsmouth, NH 03801-3884, (Telephone) 608-431-9460.

APPENDIX H: MAJOR PURCHASE CLAUSES

NOTICE TO PROSPECTIVE OFFERORS (NOV 1988)

(a) This procurement is subject to a test of the Navy's Contractor Evaluation System (CES), "Red/Yellow/Green" (RYG) program. The test is authorized by the Assistant Secretary of the Navy (Shipbuilding and Logistics) for the acquisition of specific commodities within designated Federal Supply Classes (FSCs) by participating test activities.

(b) The Government reserves the right to award to the contractor whose offer represents the best overall purchase value to the Government. As such, the basis for contract award will include an evaluation of proposed contractor's past quality performance history on the particular commodity or commodities, identified below, as recorded in the CES. The price to be considered in determining best value will be the evaluated price after Technical Evaluation Adjustments (TEA)s for related quality assurance actions, as applicable, are applied to the offered price.

(c) The procedures described in the clause of this solicitation entitled "ADDITIONAL EVALUATION FACTOR--TEST OF CONTRACTOR EVALUATION SYSTEM (NOV 1988)" will be used by the contracting officer to assist in determining the best purchase value for the Government--price, past quality performance, and other factors considered.

(d) The commodities included in this test, as currently solicited, are:

<u>FSC No.</u>	<u>FSC Nomenclature</u>	<u>CLIN</u>
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ADDITIONAL EVALUATION FACTORS--TEST OF CONTRACTOR EVALUATION SYSTEM (NOV 1988) (MAJOR PURCHASE PROCEDURES)

(a) This procurement is part of a test of the Navy's Contractor Evaluation System (CES) "Red/Yellow/Green" (RYG) Program, authorized by the Assistant Secretary of the Navy (Shipbuilding and Logistics), for the acquisition of specific commodities by participating activities. At the end of the test, data concerning awards made during the period will be evaluated to assess the program's effectiveness and impact on the acquisition process.

(b) The purpose of RYG is to assist contracting personnel during source selection to determine the best value for the Government--price, past quality performance, and other factor considered. The test program uses accumulated contractor quality performance on selected commodities as either "Red" (high risk), "Yellow" (moderate risk), "Green" (low risk), or "Insufficient Data", based on the degree of risk to the Government of receiving poor quality products. Such classifications are then used to apply Technical Evaluation Adjustments (TEA)s during source selection.

(c) A TEA is a monetary assessment added to the price of selected commodities that have been classified as either "Red", or "Yellow" for specific contractors, and is based on the cost to the Government for effecting additional quality considerations that would otherwise not be required if award were made to a contractor with a satisfactory performance history. During evaluation of quotations, the necessity for any additional quality assurance requirements will be determined, and the applicable TEA will be assessed onto the quoted price of the "Red" and/or "Yellow" commodity. After consideration of any other pertinent price-related factors (e.g., transportation charges, First Article Testing, discount terms, etc.), this adjusted price becomes the basis for determining award of the purchase order. A commodity's classification may change over time as new or revised quality performance data become available.

(d) Classifications for the test program are summarized as follows:

"Green"--Low risk. No extraordinary quality requirements or additional actions required; satisfactory quality history.

"Yellow"--Moderate risk. History of quality problems; special quality requirements/actions needed; Technical Evaluation Adjustments (TEA) applied to offered price.

"Red"--High risk. Special alert to history of poor quality performance; TEA applied to offered price(s), and contract award requires higher level approval.

"Insufficient Data"--Generally, may be commodities of first-time offerors or offerors for whom current, up-to-date quality performance history is unavailable; additional quality actions may be needed and invoked; however, a TEA is not assessed.

(e) Prospective offerors may address questions with regard to their assessment classification on particular commodities to: Naval Sea System Command Detachment, Naval Material Quality Assessment Office (NMQAO), Federal Building, Room 423, 80 Daniel Street, Portsmouth, NH 03801-3884, (Telephone) 608-431-9460.

APPENDIX I: FIXED PRICE - GREATEST VALUE CLAUSES

NOTICE TO PROSPECTIVE OFFERORS (NOV 1988)

(a) This procurement is subject to a test of the Navy's Contractor Evaluation System (CES), "Red/Yellow/Green" (RYG) program. The test is authorized by the Assistant Secretary of the Navy (Shipbuilding and Logistics) for the acquisition of specific commodities within designated Federal Supply Classes (FSCs) by participating test activities.

(b) The Government reserves the right to award to the contractor whose offer represents the best overall purchase value to the Government. As such, the basis for contract award will include an evaluation of proposed contractor's past quality performance history on the particular commodity or commodities, identified below, as recorded in the CES.

(c) The procedures described in the clause of this solicitation entitled "ADDITIONAL EVALUATION FACTOR--TEST OF CONTRACTOR EVALUATION SYSTEM (NOV 1988)" will be used by the contracting officer to assist in determining the best purchase value for the Government--price, past quality performance, and other factors considered.

(d) The commodities included in this test, as currently solicited, are:

<u>FSC No.</u>	<u>FSC Nomenclature</u>	<u>CLIN</u>
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ADDITIONAL EVALUATION FACTORS--TEST OF CONTRACTOR EVALUATION SYSTEM (NOV 1988) (FIXED PRICE--GREATEST VALUE PROCEDURES)

(a) This procurement is part of a test of the Navy's Contractor Evaluation System (CES) "Red/Yellow/Green" (RYG) Program, authorized by the Assistant Secretary of the Navy (Shipbuilding and Logistics), for the acquisition of specific commodities by participating activities. At the end of the test, data concerning awards made during the period will be evaluated to assess the program's effectiveness and impact on the acquisition process.

(b) The purpose of RYG is to assist contracting personnel during source selection to determine the best value for the Government--price, past quality performance, and other factor considered. The test program uses accumulated contractor quality performance on selected commodities as either "Red" (high risk), "Yellow" (moderate risk), "Green" (low risk), or "Insufficient Data", based on the degree of risk to the Government of receiving poor quality products. A commodity's classification may change over time as new or revised quality performance data become available.

(c) For the purpose of source evaluation and selection, both the color classification of an offeror's commodity and the proposed price(s) shall be evaluated in accordance with weighted evaluation criteria established by the Government prior to the receipt of proposals. Price-related factors, such as transportation charges, First Article Testing, discount terms, etc., will also be considered; however, no score or rating shall be applied.

(d) Offerors are advised that, although price is of significance in determining the successful offeror, past quality performance on the proposed commodity (as classified with the RYG data base) is essentially more important, and shall be evaluated accordingly. Each of the RYG classifications and its relative order of importance is summarized as follows:

"Green"--Low risk. No extraordinary quality requirements or additional actions required; satisfactory quality history. Commodities within this classification are apportioned a greater weight or value in the evaluation than those classified as either "Yellow" or "Red".

"Yellow"--Moderate risk. History of quality problems; special quality requirements/actions needed. Due to the additional quality assurance considerations that may be necessary, commodities within this classification are weighted less than those classified as "Green", but are of greater value than those within the "Red" category.

"Red"--High risk. Special alert to history of poor quality performance; contract award requires higher level approval. These commodities are apportioned the least available weight or value for past quality performance relative to commodities within the "Green" or "Yellow" classifications.

"Insufficient Data"--Generally, may be commodities of first-time offerors or offerors for whom current, up-to-date quality performance history is unavailable; additional quality actions may be needed and invoked; however, commodities within this classification shall be evaluated solely on the basis of price and related factors. Past quality performance will not be a consideration in the evaluation of commodities for which current quality performance data are not set forth within the data base.

(e) Prospective offerors may address questions with regard to their assessment classification on particular commodities to: Naval Sea System Command Detachment, Naval Material Quality Assessment Office (NMQAO), Federal Building, Room 423, 80 Daniel Street, Portsmouth, NH 03801-3884, (Telephone) 608-431-9460.

APPENDIX J: RYG COST AVOIDANCE CALCULATIONS

Procurement Actions Fiscal Years 1988/1989 (From Survey of Contracting Statistics, NAVSUP Publication 561)

	<u>1988</u>		<u>1989</u>	
	<u>Actions</u>	<u>\$ (000s)</u>	<u>Actions</u>	<u>\$ (000s)</u>
ICPs	107,437	2,864,250	89,896	2,738,333
NRCCs (less Naples)	32,170	1,717,039	25,159	1,462,077
NSCs	420,568	1,122,162	355,977	1,063,283
NAVAL LABS	148,128	1,678,260	153,543	1,944,414
Miscellaneous				
NAS CORPUS CHRISTIE	5,196	4,866	5,114	6,207
NAC INDIANAPOLIS	22,945	494,852	18,769	326,717
MCAS CHERRY PT.	19,634	25,213	15,288	24,160
NAS LAKEHURST	10,107	71,276	10,687	115,976
NAS PAX RIVER	19,956	282,281	18,119	283,065
NAS POINT MUGU	11,752	35,536	16,931	49,410
NSY NORFOLK	23,623	68,032	9,810	32,459
NSY PORTSMOUTH	13,312	62,013	14,980	47,837
NSY MARE ISLAND	16,519	40,899	20,427	49,140
NSY PEARL HARBOR	2,623	3,781	8,367	15,564
NWC CRANE	19,700	138,408	18,640	146,500
NOS INDIAN HEAD	7,334	64,788	8,279	133,114
NOS LOUISVILLE	10,896	63,879	10,258	46,675
NOS BAY ST. LOUIS	<u>6,393</u>	<u>11,638</u>	<u>6,068</u>	<u>13,305</u>
TOTAL	898,293	8,749,173	806,312	8,498,236

Average for Activities during FY 88/89: 852,303 actions for \$8,623,705,000.

RYG DATA USING FY 88/89 FIGURES

RYG Test Displacement Rate - 14%

Displacement during RYG test - 55

Competitive awards - low offeror is color classified -383

$$14\% = 100 \times (55/383)$$

Estimated RYG Actions: 85,230 for \$862,370,500.

Average FY 88/89 actions for above sites: 852,303 for \$8,623,705,000.

Estimated percentage subject to RYG - 10%

$85,230 = 10\% \text{ of } 852,303$

$\$862,370,500 = 10\% \text{ of } 8,623,705,000$

Estimated RYG Displacement Actions: 11,932 for \$120,731,870.

RYG Test Displacement Rate - 14%

Estimated RYG actions - 85,230 for \$862,370,500.

$11,932 = 14\% \text{ of } 85,230$

$\$120,731,870 = 14\% \text{ of } 862,370,500.$

Estimated Repair/Replacement Cost: \$422,561,545.

NOTE: Since RYG is not now operational at the sample implementation sites, the estimated 11,932 RYG displacement actions above represent awards to red or yellow low offerors. If half of these awards results in defective material, the cost of repairing/replacing the defective material is estimated to be seven times the cost of the material.

Estimated operational RYG action dollars - \$120,731,870.

$\$422,561,545. = 7 \times (.5 \times \$120,731,870.)$

Estimated Product Quality Deficiency Report (PQDR) Cost:
\$7,159,200.

NOTE: Since RYG is not now operational at the sample implementation sites, the estimated 11,932 RYG displacement actions above represent awards to red or yellow low offerors. If half of these awards results in defective material, Product Quality Deficiency Reports would be issued on each defective product.

Estimated RYG displacement actions - 11,932

PDQR average preparation/processing cost - \$1,200.

$$\$7,159,200 = \$1,200 \times (.5 \times 11,932)$$

Estimated additional Quality Assurance Actions Cost:

\$16,346,840.

Estimated RYG displacement Actions - 11,932

Additional QA actions estimated cost - \$1,370/action

$$\$16,346,840 = \$1,370 \times 11,932$$

APPENDIX K: CES RYG TEST STATUS REPORT

Prepared 28 FEB 1991

EXECUTIVE SUMMARY RED/YELLOW/GREEN PROCUREMENTS

	RYG Number	Dollars (\$)	Average PALT
<u>Total RYG Procurements</u> ...	1668		
<u>Waived</u>	111		
<u>Awarded</u>	1557	13,205,806	50
I. a. <u>Competitive</u>	1453	12,068,501	51
b. <u>Sole Source</u>	104	1,137,305	32
II. a. <u>\$25,000 and under</u> ..	1515	7,323,381	48
b. <u>over \$25,000</u>	42	5,882,425	111

Cost Comparisons

(Competitive awards using TEAs. No Greatest Value/Best Buy Awards)

1. Award to low offeror - with no TEAs:

If all RYG procurement awards were to low offerors with no TEAs. Cost (\$)..... 7,599,298.

2. Award to low offeror - with TEAs:

If all RYG procurement awards were to low offeror with TEAs. Costs (\$)..... 7,913,743.

3. Actual awards:

The actual RYG procurement awards with TEAs
for RED or Yellow awardee's. Cost (\$)..... 7,799,917.

4. Cost Avoidance:

Cost avoidance is the low offerors price plus
TEAs minus the awardee's price plus TEAs (if any).
Cost (\$)..... 113,826.

APPENDIX L: GLOSSARY OF ACRONYMS

APADE	Automation of Procurement and Accounting Data Entry
ASN	Office of the Assistant Secretary of the Navy
BIS	Buyer Information Service
BPA	Blanket Purchase Agreement
CAGE	Commercial And Government Entity
CBD	Commerce Business Daily
CEDES	Contractor Evaluation Data Entry System
CES	Contractor Evaluation System
CIP	Contractor Improvement Program Alert List
COC	Certificate of Competency
DCMC	Defense Contractor Management Command
DLA	Defense Logistics Agency
DLSIE	Defense Logistics Studies Information Exchange
DoD	Department of Defense
DON	Department of the Navy
FAT	First Article Testing
FAR	Federal Acquisition Regulation
FMSO	Fleet Material Support Office
FSC	Federal Supply Classification
GSA	General Services Administration
GSI	Government Source Inspection

HM&E	Hull, Mechanical, and Electrical
MIR	Material Inspection Record
MODEM	Modulator/Demodulator
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NMQAO	Navy Material Quality Assessment Office
PAS	Pre-award Survey
PCO	Procuring Contracting Officer
PDREP	Product Deficiency Report and Evaluation Program
PMRS	Procurement Management Reporting System
POS	Product-Oriented Survey
QA	Quality Assurance
QDR	Quality Deficiency Report
QSR	Quality System Review
ROD	Report of Discrepancy
SBA	Small Business Administration
SECNAV	Secretary of the Navy
SPCC	Navy Ships Parts Control Center
SS	Sub-Safe/Level 1
SSPO	Strategic Systems Project Office
TEA	Technical Evaluation Adjustment
VDAR	Navy Vendor Data Analysis Report

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